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distinctness and clearness upon the blue ground, so that, while the blue of the sky may partake of the light gray of the clouds—a gray not far removed in strength from the warm light tones of the flakey clouds—yet the crispness with which these clouds are put on, brings them sharply and brightly out.

In order to give solidity and brightness to the high lights of the clouds, these lights must be laid on with stiff color containing but little oil in it.

The clouds should be painted on the sky while the latter is yet wet, and they are then united by having their edges blended; but where the lights of the clouds are sharp and well-defined, they are best produced by being put in when the first painting is quite dry.

Never use Prussian or Antwerp blue in the sky, as these sharp and poignant colors have nothing in general with the sky, and the effect of their use is very disagreeable. For the gray tones of the sky and clouds heavy colors should be avoided. Ivory black and white, with a slight touch of a warm red, form a desirable variety of tints for this, or for the very light gray airy clouds, cobalt, madder lake and yellow ochre is very useful.

All distant objects, lying immediately under the effect of a clear sky, will have in their tones a portion of the azure and other tints of the sky. In painting them, they should be treated broadly, without detail and with masses of light and shadow; indeed, vagueness is necessary, both in outline and tint, each, of course, being tempered by the degree of remoteness in the objects, as well as by the state of the atmosphere and the time of the day.

Dark objects become lighter and light ones darker by distance—though not in an equal degree; for lights are slowly lost, while dark objects part with their color more quickly in retiring. The distance, however, at which these two classes of objects become of one color or tone, depends upon the state of the atmosphere.

As the objects advance toward the foreground, a little more distinctness of color may be given; but it must rarely be stronger than that tone which black, white, and yellow ochre will produce. It is of first importance to make the middle-distance, in color and in the nature of its objects, of such a character as will lead the eye agreeably and perceptibly to the foreground.

A little warm colors or a delicate gray and Naples yellow may be interspersed either in buildings or in the objects which may require such a variety.

In mixing green tints from blue it is well to remember that cobalt produces delicate tints, French ultramarine deeper and darker tones, while indigo forms very dark tones leaning more or less to black, wherefore it is very necessary to be careful in the use of the latter.

In the middle-distance the greens of the land and trees gradually partake of the aërial tone of the distance in proportion as they recede toward the horizon; yet it is well not to neglect those accidental touches of the sun's rays which give such important aid to the painter by separating the various divisions and breaking the monotony of the landscape: these bright spots of light should be slightly golden, yet of a very subdued character, compared with similar effects in the foreground; they are of various tints; some of them yellowish, others almost a flesh color, some roseate, and others again of an orange tint.

Having observed the proper color, lay the foliage in irregular blots with a brush filled with plenty of color freely mixed with megilp; the copious use of this vehicle imparts a rich pulpy appearance to the work. Then take a small sable brush and mark out and form these irregular blots into a more defined shape and variety of touch.

Paint the half shadows of the foliage with opaque color. Leafing, when against the light, is richer in color than when under the reflections from the opposite sky; in fact, the upper sides of leaves are generally smooth and glossy—a condition which causes them to take the reflections of the sky; hence, the outer touches ought to be cool (partaking of the coolness of the sky); not so the interior masses.

Painting into the depths of the shadows with decided dark touches prevents the whole from being flat and heavy; it is necessary also to paint into the retiring—that is, the more distant portions—while yet wet, with more delicate opaque tints, for this not only takes off the effect of too much sameness, but gives greater relief to the advancing branches.

Do not, in the first painting, make your trees of a fine green; depend, rather, for the proper effect, upon repeated glazings and touchings afterward into the masses with delicate gray and green ones.

In painting trees, consideration must be taken of the unsteady appearance, the constant waving, of the general mass. It is therefore better to put the general effect in with the end of the brush, or in such a way as will give a rich surface to work upon—a surface filled with transparent color of unsteady character laid in with reference to the subsequent finished painting; for in commencing trees, or anything else, it is of first importance to work with reference to the finish.

Trees are often laid in, over the sky, without detail, the visible portion of the sky when small being thus obliterated by the mass blotched on; in such instances the little points of azure or sky are put in during the second painting. It is necessary to make the extremities of the branches more tender in color than the middle parts, and by letting the lights be seen through various portions great thinness and beauty may be obtained and thus that solidity and heaviness avoided which are so unpleasant to the eye.

In painting stems and tree-trunks, lay in the stems with color as near to nature as may be practicable, then take a pointed brush-handle and draw the detail in through the color while yet wet. When the whole is dry, glaze over those details nearest forward with an admixture of a little black and burnt Sienna, and wipe it partially off so that a small portion only remains in the crevices; scumble over the distant stems as well as the retiring parts of the nearer ones, with a little pearly gray, causing them to melt in with the surrounding background.

In painting water, whether in a state of motion or quiet, care must be exercised so as not to paint it too light for its surrounding banks, and thus throw the whole picture out of harmony. Shores and banks should be given a foreground character, as they approach the eye, by means of stems, and the reflections of trees, etc., in the water; but, independently of this, greater minuteness of detail and richness of color should be aimed at and much made of hedges and reeds, as these tend to soften the abrupt harshness of the stems of the trees. Water is treated in the same way as the sky and can therefore be laid in at the same time, with the same tints, but of a paler and weaker kind. Always treat water broadly.

Reflections are usually laid in at the same time the reflected objects are painted, but with less pronounced tints. Always draw your brush in a vertical manner when putting in reflections, leaving those small horizontal lights to be put in later. Broad masses of light are, however, laid in at once.

Amateur Photography.

CONDUCTED BY GEORGE G. ROCKWOOD.

PHOTO-HOLIDAY CARDS.—Let me suggest something new for a Christmas or New Year's card. Select an 8x10, or 5x8 negative of some interesting or picturesque object, exterior or interior. In the least important corner cover the negative with a neatly-cut piece of black or yellow post-office paper cut into an oval, or other appropriate form, say 1½x2. This will remain in place long enough for the purpose, or it may be attached by a little gum. Prepare another oval or double elliptic mat of the same material, but large enough to allow the entire negative to print. This will give the picture with a white oval in the corner, and a clean, white border. Then cover the entire sheet with the same yellow or black paper, leaving an opening precisely the same size and form as the small oval, which is now white. Upon this opening carefully adjust a portrait negative of yourself, or of some one acceptable to the recipient, and print it into the small oval. We now have a print of the landscape, and a portrait with a white margin. If unskilled in lettering, let a show-card writer paint on the outer edge of a sheet of clear glass, in a position to print upon the margin, which has been left blank, the words "Merry Christmas," "A Happy New Year," or some such legend. This, of course, should be painted on the glass *in reverse*, or backward, so that when it is printed on the silver paper it will read properly. Now, having covered the pictures with the same black or yellow paper, print faintly the legend upon the border. Then tone, fix and mount. If the central or larger picture should be of a homestead, or of some familiar interior, this, combined with the portrait of the donor, would make a holiday card of decided interest.

PERMANENCE OF PHOTOGRAPHS.—There is much discussion in the technical journals and at society meetings concerning the permanence of the ordinary prints on albumen paper, and I am often asked for an opinion on the subject. Facts are always better than theories. Among the first pictures I took was a series of photographs of some of Eastman Johnson's pictures; this was in 1859. One of these prints now hangs in my library as bright and fresh as the day it was framed. In portraiture I have been equally successful. My treatment of prints, however, is slightly different from that generally practised. My photographs are uniformly soaked in clean or running water for fifteen to sixteen hours after printing and fixing. This is rarely done, as it is said to affect the brilliancy of the pictures. While this is possibly true in a measure, I feel sure that the practice is conducive to their durability.

ECCENTRICITIES IN LIGHTING.—An amateur sends me a cabinet size portrait, asking "What ails it?" The plates were good, the development was satisfactory, but the result is curious, inasmuch as the head of a fine-looking man in perfect health is made to appear like a skull. It is an instructive illustration of the result of bad lighting. The light is so arranged as to exaggerate into caverns every indentation in the face. It is the most successful caricature, of the sort, I have ever seen. How it was done I know not, but this is the way I should go to work to produce such a result. I would place my subject against a dark background, and then from a very small top skylight concentrate the light upon his head, being careful that no other light, either direct or reflected, reached him. By this means I could come very near getting the effect.

SUGGESTION FOR FILM NEGATIVES.—Lightness and portability of apparatus seem now to be the objective point of all photographers, both professional and amateur. To secure this end it seems evident that some form of film or paper negative must be used. The paper negatives of Eastman seem to be all that could be desired with large pictures, and are reasonably successful in the small sizes. I would like to suggest to some of our amateur experimenters in emulsion to make the following experiment. I shall be happy to record the results in these columns. Render to any degree water-proof any good photographic paper by sizing it with any gum or resinous substance which is readily soluble in benzine, naphtha, etc. The surface being thus prepared, have the paper calendered, or in some manner rendered smooth. Then, in convenient sized sheets, coat them with emulsion, precisely as glass would be prepared. After development, make a double or single transfer, as in the carbon process. The most self-evident plan would be to apply a gelatine film, while wet, as now is done for supporting purposes. When it is dry apply to the *back* of the paper or support of the negative, naphtha, which will at once dissolve the gum and release the film, leaving it upon the gelatine support. I imagine we should now have a negative free from all granulation, such as is sometimes imparted by paper, and which could be printed from either side.

NINE THOUSAND PHOTOGRAPHS A DAY.—Mr. Eastman tells me that he is about to introduce a printing-machine—automatic, after the apparatus is once timed and "set"—which will print nine thousand pictures a day on bromide paper. The paper is prepared in long bands on spools, and is fed into the illuminating apparatus, a species of optical lantern, in sizes or lengths which may be most desirable. For instance, for the octavo size, the paper is ten inches wide, and fed into the instrument seven inches at a time. It is, I imagine, similar in principle to the Fredericks machine, which was in use some twenty-five years ago for the purpose of printing on paper prepared by the old serum process, mentioned before in these columns. Mr. Eastman is the inventor of this last improvement, and, like all of his enterprises, it is eminently practical and simple.

A "PERPLEXED AMATEUR" says, in sending me some prints: "I have tried the sensitized papers and all the best brands of albumen paper, but fail to get the rich purple tone which I so much desire." The fault is with your negatives. All seem to be either over-timed or slightly fogged. It is impossible to get rich chocolate browns or purple tones unless the negatives are of the right quality. Try less time, and carry the development further; only a brilliant negative will make brilliant prints.

NEW APPARATUS INVENTIONS.—At the regular meeting of the Society of Amateur Photographers of New York, in October, Mr. Barker exhibited an improved form of camera invented by himself. It consisted in having one lens-front and bed-frame which can be mounted on various-sized backs with bellows. One end of the bellows was fastened to the back frame, while the front was attached to a circular wood ring. A pivoted flat brass hook on the back of the lens-front held the ring in position and permitted the bellows to rotate. If a 5x8 back and bellows was to be unshipped and removed, the flat hook was raised and the circular front slipped out; then, by pushing the back sidewise with a knock, it was at once released from the bed-frame. An 8x10 back with bellows could be immediately attached in the same way. The object was to save the expense of having two complete cameras. The back was novel, but rather exasperating. The 8x10 back will always make a small picture, but if one wanted to make an 8x10 and had only the 5x8 combination, it would be somewhat embarrassing. Mr. Barker's invention, however, has the decided advantage of compactness. I think Mr. Grisdale's attachment suggests an improvement upon Mr. Barker's. It enables him to use the holders the full size of the camera-box, or any desired size smaller. Another excellent suggestion of Mr. Grisdale's was that of painting one side of the end of the slide white. That side now being outward, shows that the plate has not been exposed, and after it has been exposed you simply push the slide in, so that the black slide comes out.

FOR WORKING DRY PLATES.—I have yet to see anything more satisfactory than what was introduced during the tannin dry plate period, and was known as the "Stock box," being named after its inventor, John Stock. This consisted of a camera and one dry plate-holder, and, so to speak, a magazine of plates. This latter was a box in which a store of dry plates is placed in grooves so arranged that the plate-holder or shield could be inserted in the slot on top of the plate-box, which was automatically opened by the holder. The box was then tilted, and a plate would slide from its groove into the holder. As the plate-holder was withdrawn, the box was automatically closed, and the holder itself made light-tight. After the plate had been exposed in the camera, it could be restored to its place in the box, reversing the operation. The holder could then be applied to another slot, and another plate could be taken out, and so on, until two dozen or more plates were used. The box containing the two dozen plates was much more compact and cost certainly less money than the proper number of plate-holders to contain as many plates. I do not know whether the box is made now; if not, some enterprising dealer should revive it.

DON'T!—Among a series of suggestions, beginning with "Don't," recently offered by a member of the New York Society of Amateur Photographers, was, "Don't go into raptures over every new developer." The gentleman was right, for it does seem to be the destiny of almost every amateur to discover or invent a new developer. There is but little variation in all of the published formulas, and it is a safe rule to use that of the manufacturer, which invariably accompanies every package of plates. Another: "Don't take your plate out of the fixing bath too soon." The result of haste is to produce fog and render good printing of the negative difficult.

PHOTOGRAPHING THE AURORA BOREALIS.—At a recent meeting of the Berlin Photographic Society, among other novelties exhibited by one of its members, was a photograph of the Aurora Borealis or Northern Lights. This has often been attempted, but never accomplished till now, by Tromholt, with color-sensitive plates.

REDUCING DENSE PLACES IN GELATINE NEGATIVES.—Professor Vogel relates that a short time ago he took a view in Torgatten, Norway, of a rocky cave looking out upon the sea. As was expected, the opening of the cave was considerably over-exposed, and was also surrounded by an ugly halo. In order to reduce this portion without affecting the rest, he dipped the negative in water till it was thoroughly wet, and then dried the portions *not* to be reduced with strips of blotting-paper. Holding the plate in a horizontal position, he laid with a brush upon the portion of the plate requiring to be reduced an aqueous solution of persulphate of iron, while he watched its effect with a looking-glass held underneath. The effect was so striking that, after a few minutes, not only the halo disappeared, but the whole of the over-exposed part of the landscape was reduced to the required density. Nothing remained but to wash the plate in a thorough manner for one hour.